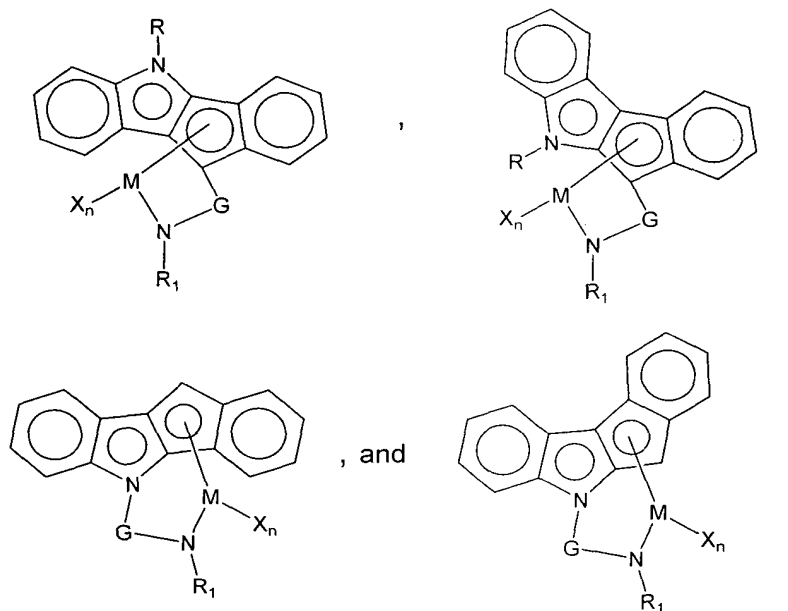


We claim:

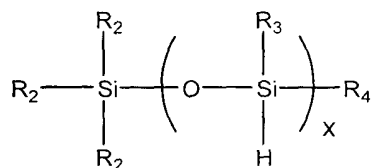
1. A process which comprises polymerizing an olefin in the presence of a hydrosilane and a catalyst system which comprises an activator and a bridged indenoindolyl Group 4-6 transition metal complex having open architecture.
2. The process of claim 1 wherein the transition metal complex has the general structure selected from the group consisting of:



in which M is a Group 4-6 transition metal, G is a linking group, R is alkyl, aryl, dialkylboryl, or trialkylsilyl, R_1 is C_1 - C_{20} hydrocarbyl, X is alkyl, aryl, alkoxy, aryloxy, halide, dialkylamino, or siloxy, and n satisfies the valence of M.

3. The process of claim 1 wherein the olefin is selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene, 1-octene and mixtures thereof.
4. The process of claim 1 wherein the activator is selected from the group consisting of alumoxanes, ionic borates, ionic aluminates, alkylaluminums, and aluminoboronates.
5. The process of claim 2 wherein M is a Group 4 transition metal.

6. The process of claim 2 wherein M is Ti or Zr, G is dimethylsilyl, and X is halide or alkyl.
7. The process of claim 1 wherein the polymerization is performed at a temperature within the range of about 30°C to about 100°C.
8. A slurry polymerization process of claim 1.
9. A gas-phase polymerization process of claim 1.
10. The process of claim 1 wherein the hydrosilane has the general structure:



wherein each R₂ is independently selected from the group consisting of hydrogen, C₁–C₁₀ hydrocarbyl, and trifluoroalkyl; R₃ is C₁–C₁₀ hydrocarbyl; x is an integer from 0 to 200 and R₄ is selected from the group consisting of hydrogen, trialkylsiloxy and C₁–C₁₀ hydrocarbyl with the proviso that when x is 0, R₄ is hydrogen.

11. The process of claim 10 wherein R₂ is C₁–C₁₀ hydrocarbyl, x is 0 and R₄ is hydrogen.
12. The process of claim 10 wherein x is an integer from 5 to 100, R₂ is C₁–C₁₀ hydrocarbyl, and R₄ is trialkylsiloxy.
13. The process of claim 12 wherein R₂ and R₃ are methyl and R₄ is trimethylsiloxy.
14. The process of claim 10 wherein the hydrosilane is used at a level of from about 20 to about 1000 grams of silicon per gram of transition metal.
15. The process of claim 14 wherein the hydrosilane is used at a level of from about 50 to about 500 grams of silicon per gram of transition metal.